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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,428	02/28/2005	Noam Egozi	39878	5344
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ARLINGTON, VA 22215				
EXAMINER				
CATTUNGA, SANJAY				
ART UNIT		PAPER NUMBER		
3768				
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12/14/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,428

Applicant(s)

EGOZI, NOAM

Examiner

SANJAY CATTUNGAL

Art Unit

3768

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 and 43-73 is/are pending in the application.
- 4a) Of the above claim(s) 18-38, 41-43, 47, 48, 51, 52, 59-64, 66-70, 72 and 73 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 39, 40, 44-46, 49, 50, 53-58, 65 and 71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-592)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/16/10; 06/02/10; 07/30/08; 03/27/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claim 1-5, 8-14, 17, 39, 40, 44, 49, 50, 53-58 65, and 71, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,699,191 to Brock-Fisher (Brock).**

3. Regarding **Claims 1, 44, and 53**, Brock teaches a method of detecting gas bubbles in a living body, comprising: transmitting at least one original electromagnetic signal to a body portion (figs. 2 and 3; abstract and col. 2 lines 10-24); detecting a signal modulated by a flow of blood in said body portion (figs. 2 and 3; abstract and col. 2 lines 10-24); and analyzing a perturbation in said signal to determine at least one of an existence and a property of a bubble in said blood flow (figs. 2 and 3; abstract and col. 2 lines 10-24) wherein said transmitting, said detecting and said analyzing are carried out by a device worn on said body (claim 1).

4. Regarding **Claim 2**, Brock teaches that the original signal comprises a series of pulses (fig. 2 teaches ultrasound signal which is a series of pulses).

5. Regarding **Claim 3**, Brock teaches that the detected signal comprises a reflected signal (fig.2 ultrasound signals received are reflected echo waves).

6. Regarding **Claim 4**, Brock teaches that the detected signal comprises a signal modulated by transmission through said flow (fig. 3 teaches measuring bubbles through blood, as such the signal is transmitted through flow).
 7. Regarding **Claim 5**, Brock teaches that the signal comprises a narrow bandwidth signal (figs. 2 and 3 teach ultrasound signal, and the term "narrow bandwidth" is a broad term as any signal could be considered narrow bandwidth, since it is dependent on the interpretation).
 8. Regarding **Claim 8**, Brock teaches that the signal is at a wavelength which is selectively absorbed by hemoglobin (fig. 3 teaches measuring bubbles through blood, and ultrasound is selectively absorbed by hemoglobin).
 9. Regarding **Claim 9**, Brock teaches that the signal is at a wavelength which is selectively reflected by blood vessel walls (fig. 3 teaches measuring bubbles through blood, and ultrasound is selectively absorbed by hemoglobin).
 10. Regarding **Claim 10**, Brock teaches that the detected signal is detected using multiple detectors (fig. 2 element 16 a-n).
 11. Regarding **Claim 11**, Brock teaches that the original signal comprises multiple original signals from multiple sources (fig. 2 element 16 a-n).
- Regarding **Claim 12**, Brock teaches that the sources are arranged around a body part in which said bubbles are to be detected (fig. 2 element 16 a-n are capable of being arranged around a body part).
12. Regarding **Claim 13**, Brock teaches that the sources are arranged to view multiple parts of a body (fig. 2 element 16 a-n are capable of being arranged around a

body part).

Regarding **Claim 14**, Brock teaches that the signals are detected in series (fig. 3 teaches that signals are a Doppler wave, which is a series of pulses).

13. Regarding **Claim 17**, Brock teaches that the analyzing comprises combining the effects of said multiple sources (fig. 3 element 12 teaches combining effects of multiple sources).

14. Regarding **Claim 39**, Brock teaches that the transmitting comprises transmitting through a layer of water (col. 7 lines 9-14).

Regarding **Claim 40**, Brock teaches that the layer is between 1 and 20 mm thick (col. 7 lines 9-14).

15. Regarding **Claim 49**, Brock teaches that the apparatus comprises a wireless link.

16. Regarding **Claim 50**, Brock teaches a user input for providing task related information.

17. Regarding **Claim 54**, Brock teaches that the signal is at a wavelength which is sensitive to motion of the sensor (fig. 3 teaches ultrasound which is sensitive to motion).

18. Regarding **Claim 55**, Brock teaches that the wavelength is not selectively reflected by blood vessel walls (fig. 3 teaches ultrasound which is reflected by the wall).

19. Regarding **Claim 56**, Brock teaches that the signal is at a wavelength suitable for viewing through fat tissue (fig. 3 teaches ultrasound is suitable for viewing through fat tissue).

20. Regarding **Claim 57**, Brock teaches that the different wavelengths respond differently to bubbles (fig. 3 teaches ultrasound, and different wavelength ultrasounds react differently to bubbles).
21. Regarding **Claim 58**, Brock teaches using the signals of different wavelengths for one or more of estimating an effect of intervening tissue, looking at different depths in tissue, and looking at the flow of blood in different sized blood vessels (Fig. 3).
22. Regarding **Claim 65**, Brock teaches that the method is done under water, in the air or in outer space (col. 2 lines 15-18).
23. Regarding **Claim 71**, Brock teaches that the transmitting comprises transmitting through air (col. 7 lines 9-14).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. **Claims 6, 7, 15, and 16, rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,699,191 to Brock-Fisher (Brock) in view of U. S. Patent No. 5,394,732 to Johnson et al.**

26. Regarding **claim 6**, Brock teaches all of the above claimed limitations but does not expressly teach that the signal is visible light.
27. Johnson teaches visible light to detect bubbles in blood (col. 5 lines 7-12).

28. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brock to use visible light as the signal as taught by Johnson, since the different signal types (visible light, ultrasound, ultraviolet, infrared, or rf energy) are capable of being processed in a similar way to yield a similar result, as such the different signals are obvious variants of each other.

29. Regarding **claim 7**, Johnson teaches infrared light to detect bubbles in blood (col. 5 lines 7-12).

30. Regarding **Claim 15**, Johnson teaches that the signals have different wavelengths (col. 5 lines 7-12).

31. Regarding **Claim 16**, Johnson teaches that at least two of said different wavelengths have different absorption properties in blood (col. 5 lines 7-12 teaches infrared light and different wavelengths of infrared light are known to have different absorption properties in blood).

32. **Claims 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,699,191 to Brock-Fisher (Brock) in view of U. S. Patent No. 6,969,865 to Duchon et al.**

33. Regarding **Claims 45 and 46**, Brock teaches all of the above claimed limitations but does not expressly teach that circuitry is adapted to self calibrate and self correct the parameters.

34. Duchon teaches that the circuitry is adapted to self calibrate and self correct the parameters (col. 8 lines 45-50).

35. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brock to have a circuitry that is adapted to self calibrate and self correct the parameters, since such a setup would result in the device working at utmost efficiency since the system will be calibrated.

Conclusion

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on Monday-Friday 9-5.

37. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

38. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/SANJAY CATTUNGAL/
Examiner, Art Unit 3768